Santa Cruz Island—Plan for Recovery

The Nature Conservancy and the National Park Service are working together to save the island fox and to preserve the unique natural and cultural resources found on Santa Cruz Island. Native species and habitats are severely impacted by feral pigs and non-native plants. Without intervention, the Santa Cruz Island fox will likely perish, and multiple plant species found only on Santa Cruz Island may disappear forever. Ancient Chumash archaeological sites will continue to be damaged by pigs. The multi-faceted restoration program on Santa Cruz Island includes five main components:

- Recovering island foxes
- Relocating golden eagles
- Reintroducing bald eagles
- Eradicating feral pigs
- Controlling invasive weeds

Island Fox Recovery

From 1994 to 2000, island foxes across the northern Channel Islands declined more than 90 percent. Golden eagle predation has been identified as the primary source of fox mortality, placing the island fox on the brink of extinction on Santa Cruz, Santa Rosa, and San Miguel Islands. Today, fewer than 100 island foxes exist in the wild on Santa Cruz Island, down from about 1,500 in the early 1990s.

In 2001, the National Park Service, The Nature Conservancy, and the Institute for Wildlife Studies initiated a captive breeding program on Santa Cruz Island to help restore the island fox population to its historic levels. Over three breeding seasons, the foxes have given birth to 34 pups. As conditions permit, biologists will release the captive foxes back into the wild.

In light of the dramatic population declines on the northern Channel Islands, the U.S. Fish and Wildlife Service (USFWS) added the Santa Cruz Island fox and three other subspecies of island fox to the federal endangered species list in March of 2004.

Removing Golden Eagles

Golden eagle predation has placed the island fox on the brink of extinction. Golden eagles, a species that did not historically breed on the Channel Islands, were attracted to the island by the presence of non-native feral pigs. The endemic island foxes are particularly vulnerable to golden eagle predation because the foxes evolved without the presence of aerial predators.

Since 1999, the National Park Service, The Nature Conservancy, and the U.S. Fish and Wildlife Service have enlisted the help of the Santa Cruz Predatory Bird Research Group to live-capture and relocate golden eagles from the Channel Islands to the eastern Sierra Nevada

Mountains. More than 37 golden eagles have been removed, with less than a dozen birds remaining on the islands.

Re-establish Bald Eagles

Bald eagles were a resident breeding species on all the Channel Islands, but disappeared entirely from the islands by the early 1960s, following the dumping of thousands of tons of DDT and PCBs into southern California waters by chemical companies. These chemicals contaminated the marine-based food supply and prevented bald eagles from reproducing successfully. Although the use of DDT was banned in 1972, the recovery of bald eagles on the Channel Islands has been prevented by the persistence of DDT and PCBs in the area's marine environment.

Historically, the lack of a suitable food source and the presence of territorial nesting bald eagles excluded golden eagles from establishing themselves on the islands. In the absence of bald eagles, non-native golden eagles have established island populations during the past 10 years, supported by a year-round supply of feral piglets. Previously only occasional visitors to the northern islands, golden eagles now prey on native island foxes.

Management actions to initiate fox recovery include the capture and relocation of golden eagles, eradication of feral pigs, and subsequent reliance on restored bald eagle populations to once again deter golden eagles from settling on the northern Channel Islands. Re-establishing bald eagles returns a missing element to the ecosystem, and is an important step in restoring the island's biological diversity.

The National Park Service (NPS) is working with a consortium of agencies to restore bald eagles to the northern Channel Islands. In 2002, NPS began reintroducing bald eagles to Santa Cruz Island as part of a five-year feasibility study. The study is funded by a legal settlement with those responsible for the dumping of DDT and PCBs into the Southern California Bight.

Eliminating Feral Pigs

Today, thousands of feral pigs inhabit Santa Cruz Island, rooting up soil, destroying Chumash archaeological sites, and promoting the spread of non-native weeds. Additionally, pigs provide one of the principal food sources for non-native golden eagles. The golden eagles also feed on island foxes, and have placed the island fox on the brink of extinction. Feral pigs have also been identified as a threat to all of the threatened or endangered plant species on the island.

Directly and indirectly, feral pigs cause extensive damage to the island's sensitive resources. The future of the island fox and nine threatened or endangered plants on Santa Cruz Island will not be secure until feral pigs are removed.

In 2005, The Nature Conservancy and the National Park Service will begin eliminating the feral pigs through a professional hunting contractor. Because they are potential carriers of disease, the pigs cannot be returned to the mainland or salvaged for food, nor is there effective contraception for the fast-breeding animals.

Controlling Invasive Weeds

Over the past 150 years, trampling by thousands of feral sheep and pigs has dramatically affected the vegetation on Santa Cruz Island, removing native vegetation cover and contributing to higher rates of erosion. Non-native plants have capitalized on these disturbances, occupying

between 25 to 80 percent of the island ground cover. Today, Santa Cruz harbors at least 170 introduced plant species, making up 26 percent of the island's total flora.

Fennel, a perennial herb native to southern Europe, arrived on the island in the late 1800s and has since invaded many plant communities. Fennel plants move into disturbed soils, grow quickly to up to nine feet in height, and establish dense thickets that block out native plants.

Fennel now covers nearly 2,000 acres of Santa Cruz Island's surface and is currently spreading along roadsides and into many coastal sage, grassland, and bare or disturbed sites. The Nature Conservancy has begun a fennel management program in the island's central valley and has reclaimed nearly 500 acres so far.

Feral pigs act as a major cause for weed dispersal and establishment of fennel on Santa Cruz Island. Pig rooting creates an ideal seed bed for weeds; areas of high pig density and rooting contain fennel seedlings and newly established plants. Eradicating feral pigs will remove a primary source for the spread of fennel on the island.

Many types of native island vegetation are already recovering rapidly in response to the removal of feral sheep, completed on western Santa Cruz Island by The Nature Conservancy in the 1980s and on the eastern portion of the island by the National Park Service in 1999. Whole forests have regrown in bare areas and fields of wildflowers have returned.